Logania sylvicola (Loganiaceae), a new species from south-west Western Australia

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Abstract

Cranfield, R.J., Hislop, M. & Macfarlane, T.D. *Logania sylvicola* (Loganiaceae), a new species from south-west Western Australia. *Nuytsia* 20: 271–275 (2010). *Logania sylvicola* Cranfield, Hislop & T.Macfarlane, a new species endemic to the Jarrah Forest Bioregion of south-west Western Australia, is described, illustrated and mapped.

Introduction

Logania R.Br. (Loganiaceae) is a genus of *c.* 36 species, with one endemic species in New Caledonia, one endemic to New Zealand and the rest in Australia (Conn & Brown 1996). Currently, 22 species are recognised in Western Australia, of which 17 are endemic (Western Australian Herbarium 1998–). The genus is divided into two sections, sect. *Logania* A.DC. which is characterised, among other features, by dioecy and is well represented in both eastern and western Australia, and sect. *Stomandra* (R.Br.) DC. with bisexual flowers and with all species in south-western Australia except one in eastern Australia (Conn & Brown 1996). The genus has been revised by Conn (1994, 1995b) and treated in *Flora of Australia* (Conn & Brown 1996). Subsequently, Cranfield contributed to the description of the new species *L. wendyae* Cranfield & Keighery (2006) from south-western Australia. Recently, specimens from the Collie–Darkan area that failed to key adequately were noticed by Hislop. Investigation showed that although these specimens are similar to *L. nanophylla* Conn (1995b) from the Coolgardie Bioregion, morphological differences, combined with the geographic clustering of the anomalous specimens and the wide geographic and climatic separation from *L. nanophylla,* support the recognition of a new species. Accordingly, *L. sylvicola* Cranfield, Hislop & T.Macfarlane is described here. This species is known from five specimens from the Jarrah Forest Bioregion, collected in open forest or woodland areas on the western edge of the southern wheatbelt of Western Australia (Figure 1).

Methods

This paper follows the terminology adopted by Conn (1995a) to describe the inflorescence structure characteristic of the genus *Logania.* The term *propodium* refers to the penultimate internode of the axis terminated by a pair of bracts (prophylls) followed by the the ultimate internode, the *anthopodium* (if

present) and the flower. The *hypopodium,* the lower portion of the flower stalk that forms in the axis of the branchlet and leaf, and the upper-most part of the stalk (the anthopodium) are absent or too small to measure in the new species.

Taxonomy

Logania sylvicola Cranfield, Hislop & T.Macfarlane, *sp. nov.*

Loganiae nanophyllae affinis sed foliis oppositis (non fasciculatis), linearibus 3–5 mm longis, lobis corollae 1–1.5 mm longis, habitu fruticoso ad 50 cm altitudinem differt.

Typus: Bennelaking Conservation Park, south-west of Darkan, Western Australia [precise locality withheld for conservation reasons], 30 August 2009, *M. Hislop* 3916 (*holo*: PERTH 08038880; *iso*: CANB, MEL).

Erect to spreading compact multi-branched *shrub* 50 cm high, up to 50 cm wide, dioecious. *Branches* erect, moderately to sparsely hairy; hairs coarse, antrorse to slightly curved, white, *c.* 0.1–0.2 mm long. *Leaves* opposite, subsessile; petiole 0.2–0.3 mm long, glabrous; stipules reduced to a stipular line with occasional short hair tufts; lamina slightly recurved, linear, 3–5 mm long, 0.5–0.6 mm wide; abaxial surface minutely hairy, obscured by the revolute margins, midrib exposed and glabrous; adaxial surface shiny, glabrous; base cuneate; margin strongly revolute; apex acute and slightly recurved. *Inflorescence* terminal or in leaf axils, erect or slightly pendulous, triadic to botryose, 3–5 (7-) flowered; hypopodium 1–2 mm long; lower prophylls 2, opposite, 1–1.5 mm long; propodium 1–1.5 mm long; flowers unisexual, highly aromatic, sessile to subsessile in upper 2 prophylls, prophylls opposite, 0.5–1.0 mm long. *Male flowers* 1.5–2 mm long; *calyx* 1.0–2.0 mm long, dark brown to black, glabrous except for short white hairs on margins of lobes, lobes ovate, 1 mm long, 1 mm wide; apex obtuse; *corolla* white to cream, 1.5–2.0 mm long, tube about as long as lobes, orifice with a low rim of papillae, lobes spreading, ovate, 1.0–1.5 mm long, 1–1.5 mm wide, papillose on surface and margin, apex rounded; *stamens* 5, inserted at middle of tube, filament *c.* 0.3–0.5 mm long, anthers *c.* 0.5 mm long; *pistillode* with ovary virtually absent, the disk broad and flat, style well-developed, *c.* 0.5–0.75 mm long, stigma capitate to slightly bilobed. *Female flowers* similar but smaller, 1.0–1.5 mm long; *calyx* 0.5–1.0 mm long, lobes 0.5–0.75 mm long, 0.5 mm wide; *corolla* white to cream, 1–1.5 mm long, tube 0.5–0.75 mm long, lobes 0.5–1 mm long, 0.5–1 mm wide; *staminodes* absent or present, *c.* 0.3–0.5 mm long; ovary ovoid or nearly so, 0.5 mm long, style *c.* 0.5 mm long, stigma capitate to bilobed; locules 2, ovules 1 per locule, ellipsoid, *c.* 0.25 mm long. *Capsule* ellipsoid with two carpels, each carpel separated almost to the base, apex apiculate; dehiscing 3/4 of the length; carpel 5.0–5.5 mm long, 3.0–3.5 mm wide. Seed brown, ellipsoid, slightly compressed, 4.0–4.5 mm long, 2.5 mm wide; surface reticulate. (Figures 2, 3)

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] Sep. 2005, *E.M. Bennett* BVC073-5 (PERTH 07331673); 15 Aug. 1994, *V. Crowley* DKN691 (PERTH 05322480); 10 Dec. 1997, *R. Davis* 4687 (PERTH 04926544); 9 Sep. 1994, *C.M. Lewis* 9 (PERTH 04921194).

Distribution and habitat. All five collections were made from the Jarrah Forest Bioregion of south-western Western Australia, occurring in woodland to open forest vegetation on the mid-slope of laterite rises associated with brown clay to clayey sand (Figure 1).

Phenology. Flowering in August–September and fruiting in October.

Conservation status. Department of Environment and Conservation (DEC) Conservation Codes for Western Australian Flora: recently listed as Priority Two. This species is known from only five locations, one of which is in a Conservation Park. Additional surveys are required to determine the true status of this species.

Etymology. The specific epithet is derived from *sylva,* Latin for woodland or forest, and *-cola,* inhabiting, in reference to the habitat of the species.

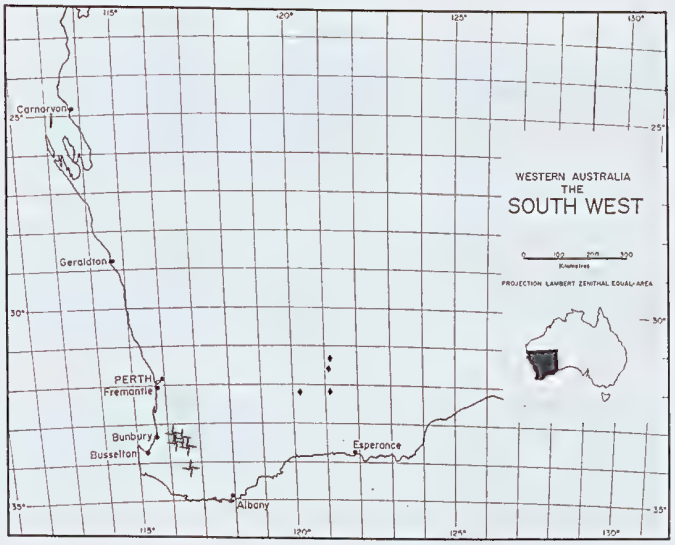

Figure 1. Distribution of *Logania sylvicola* (✦) and *Logania nanophylla* (◆) in south-west Western Australia..

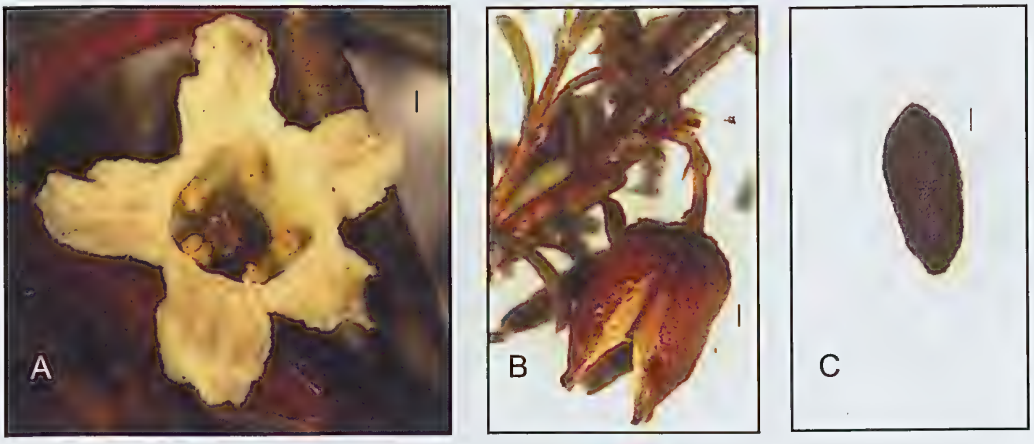

Figure 2. *Logania sylvicola.* A – male flower from above showing throat rim; B – dehisced capsule; C – seed. Photographs by R.J. Cranfield from *M. Hislop* 3916 (A) and *R. Davis* 4687 (B & C). Scale bars =1mm.

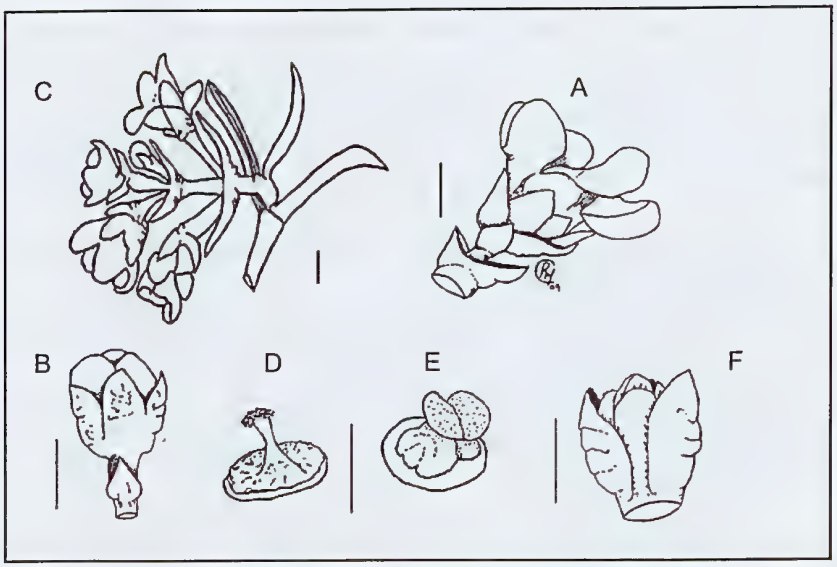

Figure 3. *Logania sylvicola*. A – flower; B – mature bud; C – inflorescence; D – male flower pistillode and disk; E – female flower gynoecium and disk; F – immature bud. Drawings by R.J. Cranfield from *M. Hislop* 3916. Scale bar = 1 mm.

Affinities. Logania sylvicola is morphologically most similar to *L. nanophylla*, the differences between these two species being shown in Table 1. Like *Logania nanophylla* (Conn & Brown 1996), *L. sylvicola* has features which place it in *Logania* sect. *Logania*, *viz.* dioecy, woody branch bases, obtuse calyx lobes, stamens inserted in the middle of the corolla tube, and glabrous filaments.

Table 1. Comparison of selected characters between *Logania nanophylla* and *L. sylvicola* including features of male and female plants.

Characters	*Logania nanophylla*		*Logania sylvicola*	
	male	female	male	female
Leaf				
shape	elliptic		linear	
arrangement	clustered		opposite	
length (mm)	1.2–2.1	2.0–2.5	3.0–5.0	3–4
Propodium				
length (mm)	0.5–1.0		1.0–1.5	
Calyx				
length (mm)	0.7–1.0	0.5	1.0–2.0	0.5–1.0
Corolla				
total length (mm)	1.5–2.0	1	1.5–2.0	1.0–1.5
lobe length (mm)	0.9–1.1	0.5–1	1.0–1.5	1
Style				
length (mm)	*c.* 0.1–0.5	0.25–0.5	*c.* 0.5–0.75	*c.* 0.5
Filament				
length (mm)	*c.* 0.3		*c.* 0.3–0.5	

Notes. Female plants of both species are poorly collected and further collections are required. In the PERTH collection there is only one female specimen of each taxon. The females have less conspicuous flowers and may be generally overlooked by collectors thinking they are not fully in flower.

Acknowledgements

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